

## Education

Apr 2023 – **Doctoral Candidate**, Technische Universität Dresden, Dresden, Germany.

Present **Dissertation: Deep Reinforcement Learning for Autonomous Driving: Human-Informed, Ethical, and Transferable Agents**

- Integrated naturalistic human driving data into DRL algorithms, improving safety, comfort, and efficiency.
- Developed a risk-aware trajectory planning and execution framework, enabling ethically responsible behavior in mixed traffic.
- Validated simulation-trained algorithms on real-world autonomous vehicle platforms, bridging the sim-to-real gap.

Advisor **Prof. Dr. rer. pol. Ostap Okhrin**, Technische Universität Dresden

Co-Advisor **Prof. Dr. Liam Paull**, Université de Montréal

Apr 2017 – **M.Sc. Mechanical Engineering**, Karlsruher Institut für Technologie, Karlsruhe, Germany.

Feb 2021 Specialization: *Mechatronics & Information Technology*  
**Master Thesis:** Where am I? A mobile machine in the Smart Working Site

Sep 2012 – **B.Sc. Mechanical Engineering and Automation**, China University of Petroleum (East China),  
Jun 2016 Qingdao, China.  
Specialization: *Control Technology & Micro-control Technology*

## Research Experience

May 2021 – **Research Scientist**, ScaDS.AI Dresden/Leipzig, Dresden, Germany.

Present

- Developed and evaluated advanced reinforcement learning algorithms in high-fidelity driving simulations.
- Built and deployed small-scale autonomous vehicles for public demonstrations, showcasing adaptive driving behaviors.
- Designed a modular research platform for autonomous driving, enabling seamless policy transfer across DRL methods.

Oct 2024 – **Research Associate**, GWT - TUD GmbH, Dresden, Germany.

Dec 2025

- *Passenger state detection:* Integrated real-time passenger state detection into a cabin mockup using UWB radar and IR sensors, including ML-based prediction, system integration, dashboard visualization, and field testing.
- *Item-Level detection:* Analyzed requirements for detecting and managing cabin consumables and reusable items, focusing on tracking challenges caused by missing unique identities and constraints on sensor-based solutions.

Jun 2019 – **Research Intern**, Precitec GmbH & Co. KG, Gaggenau, Germany.

Dec 2019

- Developed an ML toolchain from data preparation to model validation for quality monitoring in laser material processing.
- Created visualization tools and applied feature engineering, improving defect detection reliability.

## Publications

2025 **Dianzhao Li** and Ostap Okhrin. Learning to drive ethically: Embedding moral reasoning into autonomous driving (under review). *arXiv preprint arXiv:2508.14926*, 2025.

2025 **Dianzhao Li**, Paul Auerbach, and Ostap Okhrin. Autonomous driving small-scale cars: A survey of recent development. *IEEE Transactions on Intelligent Transportation Systems*, 2025.

2024 **Dianzhao Li** and Ostap Okhrin. A platform-agnostic deep reinforcement learning framework for effective sim2real transfer towards autonomous driving. *Communications Engineering*, volume 3, page 147, 2024.

2023 **Dianzhao Li** and Ostap Okhrin. Vision-based drl autonomous driving agent with sim2real transfer. In *2023 IEEE 26th International Conference on Intelligent Transportation Systems (ITSC)*, pages 866–873, 2023.

2023 **Dianzhao Li** and Ostap Okhrin. Modified ddpg car-following model with a real-world human driving experience with carla simulator. *Transportation Research Part C: Emerging Technologies*, volume 147, page 103987. Elsevier, 2023.

2022 Yusheng Xiang, **Dianzhao Li**, Tianqing Su, Quan Zhou, Christine Brach, Samuel S Mao, and Marcus Geimer. Where am i? slam for mobile machines on a smart working site. *Vehicles*, volume 4, pages 529–552. MDPI, 2022.

## Teaching and Supervision

2024 Teaching Assistant – Data-Driven Multivariate Statistics (Master), TU Dresden

2023–2024 Teaching Assistant – Applied Multivariate Statistics (Master), TU Dresden

2022–2023 Teaching Assistant – Theoretical Multivariate Statistics (Master), TU Dresden

2022– Present Supervised 10 Master's theses at TU Dresden, focusing on reinforcement learning for autonomous driving and trajectory planning.

## Academic Service

Sep 2022 **Conference Organization**, Conference on Reinforcement Learning, TU Dresden, Germany.  
Organized a research conference focusing on reinforcement learning methodology and its applications across domains. Coordinated program, invited leading keynote speakers (Richard Sutton, Jan Peters, Matthieu Geist, Marcello Restelli, etc.)

2022– **Peer Reviewer for Journals**.  
Present 

- IEEE Transactions on Pattern Analysis and Machine Intelligence
- IEEE Transactions on Intelligent Transportation Systems
- Transportation Research Part C
- Robotics and Autonomous Systems
- Scientific Reports, SoftwareX, TRR, MBE, EA-AI, etc.

2023– **Conference Reviewer**.  
Present 

- European Control Conference (ECC 2025)
- Transportation Research Board (TRB) Annual Meeting – AED30, AED50 Committees

## Technical Skills

Programming Python, R, Matlab,  $\text{\LaTeX}$ ; PyTorch, OpenCV

Simulation CARLA, ROS, Gazebo, SUMO, MetaDrive

Tools Git, Docker, Linux

Languages English (proficient), German (fluent), Mandarin (native)

## Referees

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